

## A MODIFIED COLLECTION NET FOR CATCHING INSECTS UNDER CLOTH BANDS ON TREES<sup>1,2</sup>

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**ABSTRACT:** Insects which rest under cloth bands on trees tend to drop when disturbed and become lost in the litter below. A standard insect collecting net was modified so when pressed against a tree bole the elasticized outer rim conformed with the shape of the tree. A collecting vial was attached at the bottom of the net. The technique made sampling under cloth bands much easier and reduced considerably the number of specimens lost.

Many insects, and particularly ground beetles, are known for their secretive habits, foraging at night and hiding during the day. To search for these cryptic species during the daylight hours is difficult and often unrewarding. Pitfall traps have been used extensively for ground crawling species, but few methods have been devised for collecting arboreal insects of nocturnal habit. Of these burlap bands are probably the best known and have been used for mechanical destruction of gypsy moth larvae (Craighead 1950). Other methods include tree-beating (Harris et. al. 1972), smoking trees (Yamashita et. al. 1970), and mechanical collectors such as Wese-loh's (1974) *Calosoma sycophanta* L. trap.

We used cloth bands for determining carabid beetles species found on tree trunks in spruce budworm (*Choristoneura fumiferana* (Clem.)) infested forests in northern New Hampshire. These bands were fashioned from 20 cm wide strips of medium weight canvas. A strip was wrapped around the bole of the tree at breast height and stapled along the bottom edge at about 12.5 cm intervals. The cloth was then cut vertically with a sharp knife (Fig. 1) just above each of the staples and the resulting flaps pulled down. This created a shelter for organisms of secretive or nocturnal habit. Previous experience had warned us that lifting the cloth flaps often led to specimens dropping immediately and becoming lost in the leaf litter at the base of the tree. Thus a collecting tray or net was needed to ensure capture of these dropping specimens.

A standard aerial insect net (30.5 cm diameter) with a heavy duty wire rim was modified for collecting insects on tree trunks. The wire rim was cut

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so that approximately one third to one half of the rim opposite the handle was removed (Fig. 2). A small loop was made in the cut ends of the rim and an elastic band approximately 20 cm long was stretched between them giving the rim flexibility when pressed against a tree bole. The net bag was then replaced on the newly constructed rim and the latter attached to the handle. The bottom of the net bag was removed at a point where a 12.5 cm diameter funnel would not be able to slip through. The funnel was then glued to the cut end of the net. The bottom of the funnel was cut so that a removable plastic collecting vial (3.5 cm diameter) would fit snugly but not fall through (Fig. 3).

The procedure when approaching a banded tree was to press the elasticized edge of the net against the tree bole just underneath one of the flaps and the flap lifted. Specimens that do not drop immediately into the collecting vial may have to be dislodged mechanically. Some, like the long legged phalangids, may try to climb out of the net but can usually be guided down into the collecting vial. An elastic width of the 20 cm is recommended because disturbance of one flap sometimes caused specimens in adjacent flaps to drop. Specimens in the collecting vial were eventually transferred into jars with a preserving fluid. In this way more than one tree could be collected from and the specimens combined to give a single sample.

We found this modified collecting net reduced considerably the number of specimens lost and lessened the time necessary to survey each banded tree. The cloth bands were checked once a week for thirteen weeks in 1977 on sixty trees (10 sugar maple, 10 red spruce and 40 balsam fir). Of the 976 specimens collected 52% were spiders, 23% ground beetles, 13% spruce budworm larvae and 11% phalangids. Six species of ground beetles were encountered under the cloth bands with *Platynus decentis* (Say) by far the most abundant. Seasonal abundance of some arthropod species was readily apparent.

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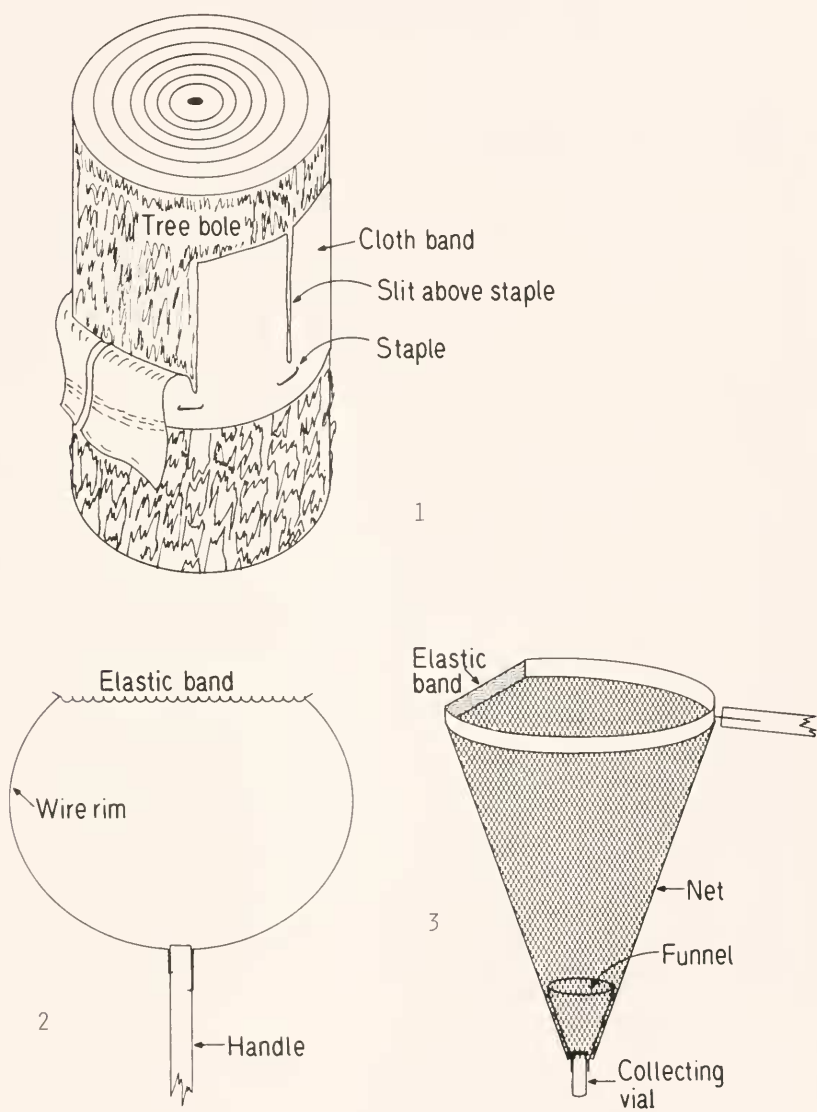


Figure 1. Attachment of cloth band on tree bole. Figure 2. Modification of wire rim of collecting net. Figure 3. Modification of net for funnel and collecting vial.